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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 06/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/082,342

Applicant(s)

OKAMOTO ET AL.

Examiner

Glenn Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 3-5 are indefinite because one doesn't know which aperture is being used in the limitation. The aperture could be the electron beam passage apertures or the skirt portion apertures.

A 112 2<sup>nd</sup> paragraph rejection has been determined for claim 1, as written about above. However, a further evaluation of the claim will be done while interpreting "apertures" in line 22 as "skirt portion apertures".

A 112 2<sup>nd</sup> paragraph rejection has been determined for claim 3, as written about above. However, a further evaluation of the claim will be done while interpreting "apertures" in line 2 as "skirt portion apertures".

A 112 2<sup>nd</sup> paragraph rejection has been determined for claim 4, as written about above. However, a further evaluation of the claim will be done while interpreting "aperture" in line 2 as "skirt portion aperture".

A 112 2<sup>nd</sup> paragraph rejection has been determined for claim 7, as written about above. However, a further evaluation of the claim will be done while interpreting

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"aperture" in line 2 as "of the skirt portion apertures" and "apertures" in line 4 as "of the skirt portion apertures".

Claims 2-7 are rejected for depending from a rejected claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Akou et al.  
Japanese Patent Application Publication Number 08-298078.

Regarding claim 1, Akou et al. disclose a color cathode ray tube **(title)** comprising: a panel **(Fig. 1 ref. 2)** having a phosphor screen **(fluorescent substance screen ref. 4)** on the inner surface thereof, the phosphor screen having a plurality of phosphor layers **(3 color fluorescent substance layer; paragraph 24)** ;

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An electron gun (**electron gun ref. 15**) located opposite the phosphor screen and configured to emit electron beams toward the phosphor screen; and

A shadow mask (**rectangle-like shadow mask ref. 32**) located opposite the phosphor screen and having a large number of electron beam passage apertures (**hole ref. 36**) through which the electron beams are applied to the phosphor layers corresponding thereto,

The shadow mask being formed by press molding (**formed by press forming paragraph 34, 40, 46**) and including a substantially rectangular mask effective portion (**principal plane section ref. 37**) in the form of a gently sloped dome (**paragraphs 21 and 29; Figs. 1 and 2 no ref. #**) having the electron beam passage apertures and a skirt portion (**skirt board section ref. 39**) extending from the peripheral edge of the mask effective portion substantially at right angles thereto,

The skirt portion having a plurality of apertures (**slit-like puncturings ref. 43**) arranged to be spaced from one another in a direction parallel to the peripheral edge of the mask effective portion (**Fig. 2 and 3 no ref. #**), and belt portions (**Fig. 2 and 3 no ref. #**) formed between the skirt portion apertures and an extending end edge (**Figs. 2 and 3 no ref. #; bottom edge of ref. 39**) of the skirt portion and extending along the extending end edge, the belt portions having wrinkles (**paragraphs 21, 28, 29 and 48; skirt formed section deforms upon heating**) formed along the extending end edge by the press molding (**paragraph 27, 34, 40 and 46**).

The skirt includes the belt, so the belt will inherently wrinkle. The applicant's admitted prior art discloses that during the molding process that "a greater odd of the

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blank is produced in a part of the skirt portion that is situated closer to the extending end, so that wrinkles are formed in the skirt portion." The applicant also discloses "wrinkles can be reduced to some degree by notching the extending end edge of the skirt portion, deep notches are need to remove the wrinkles thoroughly." Clearly the reference of Akou et al. will have wrinkles on the skirt and more wrinkles at the extending edge of the skirt which includes the belt area. The examiner concludes that Akou et al. belt portions inherently have wrinkles formed along the extending end edge by the press molding. Akou et al. does not disclose deep notches, but rather only notches (**notches ref. 40**).

Claims 1, 2 and 7 are rejected under 35 U.S.C. 102(a) as being anticipated by Okamoto et al. Japanese Patent Application Publication Number 2002216655.

Regarding claim 1, Okamoto et al. disclose a color cathode ray tube (**title**) comprising: a panel (**rectangle-like panel Fig. 1 ref. 1**) having a phosphor screen (**fluorescent substance screen ref. 6**) on the inner surface thereof, the phosphor screen having a plurality of phosphor layers (**paragraph 2**);

An electron gun (**electron gun ref. 9**) located opposite the phosphor screen and configured to emit electron beams toward the phosphor screen; and

A shadow mask (**shadow mask ref. 12**) located opposite the phosphor screen and having a large number of electron beam passage apertures (**holes ref. 19**) through which the electron beams are applied to the phosphor layers corresponding thereto,

The shadow mask being formed by press molding (**press forming paragraph 1, 4-8, 10 and 30**) and including a substantially rectangular mask effective portion (**mask**

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**principal section ref. 20 or mostly rectangle-like perforated section ref. 20a)** in the form of a gently sloped dome (**dome shape paragraph 6, 14 and 23**) having the electron beam passage apertures and a skirt portion (**skirt-board section ref. 18**) extending from the peripheral edge of the mask effective portion substantially at right angles thereto,

The skirt portion having a plurality of apertures (**puncturing ref. 24**) arranged to be spaced from one another in a direction parallel to the peripheral edge of the mask effective portion, and belt portions (**Fig. 3 no ref. #**) formed between the skirt portion apertures and an extending end edge (**rim ref. 25**) of the skirt portion and extending along the extending end edge, the belt portions having wrinkles (**paragraph 41**) formed along the extending end edge by the press molding (**press forming paragraph 1, 4-8, 10 and 30**).

The skirt includes the belt, so the belt will inherently wrinkle. The applicant's admitted prior art discloses that during the molding process that "a greater odd of the blank is produced in a part of the skirt portion that is situated closer to the extending end, so that wrinkles are formed in the skirt portion." (**page 4 lines 6-8**) The applicant also discloses "wrinkles can be reduced to some degree by notching the extending end edge of the skirt portion, deep notches are need to remove the wrinkles thoroughly." (**page 4 lines 10-13**) Clearly the reference of Okamoto et al. will have wrinkles on the skirt and more wrinkles at the extending edge of the skirt which includes the belt area. The examiner concludes that Okamoto et al. belt portions inherently have wrinkles

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formed along the extending end edge by the press molding. Okamoto et al. does not disclose deep notches, but rather only notches (**notch ref. 26**).

Regarding claim 2, Okamoto et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the belt portions ranges from 1-3 mm (**distance ref. d; paragraph 25 and 34**).

Regarding claim 7, Okamoto et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the skirt portion apertures along the extending end edge of the skirt portion is narrower than the distance between each two adjacent of the skirt portion apertures. Figure 3 clearly shows the claim limitations of claim 7.

Claims 1, 3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. Japanese Patent Application Publication Number 09-035657.

Regarding claim 1, Okamoto et al. disclose a color cathode ray tube (**title**) comprising: a panel (**panel Fig. 1 ref. 1**) having a phosphor screen (**fluorescent side ref. 4**) on the inner surface thereof, the phosphor screen having a plurality of phosphor layers (**color crt in title and therefore inherent**);

An electron gun (**electron gun ref. 7**) located opposite the phosphor screen and configured to emit electron beams toward the phosphor screen; and

A shadow mask (**shadow mask ref. 5**) located opposite the phosphor screen and having a large number of electron beam passage apertures (**electron beam passage holes ref. 15**) through which the electron beams are applied to the phosphor layers corresponding thereto,



The shadow mask being formed by press molding (**press forming paragraphs 7, 9, 15 and 16**) and including a substantially rectangular mask effective portion (**spherical-surface-like principle plane ref. 13**) in the form of a gently sloped dome having the electron beam passage apertures and a skirt portion (**long and short side fields ref. 20 and 21 respectively**) extending from the peripheral edge of the mask effective portion substantially at right angles thereto,

The skirt portion having a plurality of apertures (**stress pores ref. 18**) arranged to be spaced from one another in a direction parallel to the peripheral edge of the mask effective portion, and belt portions (**Figs 3 and 4a no ref. #**) formed between the skirt portion apertures and an extending end edge (**Figs. 3 and 4a no ref. #**) of the skirt portion and extending along the extending end edge, the belt portions having wrinkles formed along the extending end edge by the press molding.

The skirt includes the belt, so the belt will inherently wrinkle. The applicant's admitted prior art discloses that during the molding process that "a greater odd of the blank is produced in a part of the skirt portion that is situated closer to the extending end, so that wrinkles are formed in the skirt portion." (**page 4 lines 6-8**) The applicant also discloses in the applicant's admitted prior art that "wrinkles can be reduced to some degree by notching the extending end edge of the skirt portion, deep notches are need to remove the wrinkles thoroughly." (**page 4 lines 10-13**) Clearly the reference of Saito et al. has wrinkles on the skirt and more wrinkles at the extending edge of the skirt which includes the belt area. The examiner concludes that Saito et al. belt portions inherently have wrinkles formed along the extending end edge by the press molding.

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Saito et al. does not disclose deep notches, but rather only notches (**notch Figs. 3 and 4a ref. 19**).

Regarding claim 3, Saito et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the skirt portion apertures increases from the peripheral edge of the mask effective portion toward the extending end edge side of the skirt portion. From looking at figure 4a reference 18, one can clearly see that at least for the top half of the stress pores that the width of these aperture increases from the peripheral edge of the mask effective portion toward the extending end edge side of the skirt portion. Yes, the lower half decreases from the top to bottom, but there is a portion of the aperture that increases i.e. the upper half.

Regarding claim 7, Saito et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the skirt portion apertures along the extending end edge of the skirt portion is narrower than the distance between each two adjacent apertures. The width of each aperture along the extending end edge approaches zero as the aperture round pores, so the width between the apertures is clearly greater than a width approaching zero as figure 3 and 4a clearly shows. Even if the width is taken to be the diameter of the pore, Figure 3 clearly shows that the pores diameter is much smaller than the distance between each two adjacent of the skirt portion apertures.

Claims 1-3, 6 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakamoto et al. U.S. Patent 6,501,214.

Regarding claim 1, Sakamoto et al. disclose a color cathode ray tube (**title**) comprising: a panel (**panel portion Fig. 1 ref. 1**) having a phosphor screen (**phosphor**

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**film ref. 4)** on the inner surface thereof, the phosphor screen having a plurality of phosphor layers (**color crt inherent**);

An electron gun (**electron gun ref. 13**) located opposite the phosphor screen and configured to emit electron beams toward the phosphor screen; and

A shadow mask (**shadow mask ref. 5**) located opposite the phosphor screen and having a large number of electron beam passage apertures (**apertures ref. 22**) through which the electron beams are applied to the phosphor layers corresponding thereto,

The shadow mask being formed by press molding (**col. 5 lines 44-45**) and including a substantially rectangular mask effective portion (**shadow mask main surface ref. 21**) in the form of a gently sloped dome (**col. 5 lines 55-64**) having the electron beam passage apertures and a skirt portion (**skirt portions ref. 24**) extending from the peripheral edge of the mask effective portion substantially at right angles thereto,

The skirt portion having a plurality of apertures (**stress absorption holes ref. 25**) arranged to be spaced from one another in a direction parallel to the peripheral edge of the mask effective portion, and belt portions (**Fig. 3 no ref. #**) formed between the skirt portion apertures and an extending end edge (**Fig. 3 no ref. #**) of the skirt portion and extending along the extending end edge, the belt portions having wrinkles (**warping col. 1 lines 50-53; col. 3 lines 10-19**) formed along the extending end edge by the press molding.

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The skirt includes the belt, so the belt will inherently wrinkle. The applicant's admitted prior art discloses that during the molding process that "a greater odd of the blank is produced in a part of the skirt portion that is situated closer to the extending end, so that wrinkles are formed in the skirt portion." **(page 4 lines 6-8)** The applicant also discloses "wrinkles can be reduced to some degree by notching the extending end edge of the skirt portion, deep notches are need to remove the wrinkles thoroughly." **(page 4 lines 10-13)** Clearly the reference of Sakamoto et al. will have wrinkles on the skirt and more wrinkles at the extending edge of the skirt which includes the belt area. The examiner concludes that Sakamoto et al. belt portions inherently have wrinkles formed along the extending end edge by the press molding. Sakamoto et al. does not disclose deep notches, but rather only notches **(notch ref. 26)**. In col 3 lines 10-19 of Sakamoto et al. the reference discloses that warping/wrinkling is reduced but not eliminated and the stress is absorbed by the stress absorption holes which means the belt portion of the holes, so the belt portion will clearly have warping/wrinkling. This information that Sakamoto et al. shows about warping/wrinkling **(col. 3 lines 10-19)** will happen inherently to the belt portions additionally for the rejections of claim 1 of Saito et al., Okamoto et al., and Aiko et al written about above.

Regarding claim 2, Sakomoto et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the belt portions ranges from 1-3 mm **(From Figure 3 is width is S2-H-d3)**. Width is S2-H-D3, which is 12.3 mm - 7 mm - 2.6 mm = 2.7 mm. A width of 2.7 mm meets the limitation.

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Regarding claim 3, Sakomoto et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the skirt portion apertures increases from the peripheral edge of the mask effective portion toward the extending end edge side of the skirt portion. From looking at figure 3 reference 25, one can clearly see that at least for the top half of the stress absorption holes ref. 25 that the width of these aperture increases from the peripheral edge of the mask effective portion toward the extending end edge side of the skirt portion. Yes, the lower half decreases from the top to bottom, but there is a portion of the aperture that increases i.e. the upper half.

Regarding claim 6, Sakomoto et al. disclose a color cathode ray tube according to claim 3, wherein the width of each of the belt portions ranges from 1 to 3 mm (**From Figure 3 is width is S2-H-d3**). Width is S2-H-D3, which is  $12.3 \text{ mm} - 7 \text{ mm} - 2.6 \text{ mm} = 2.7 \text{ mm}$ . A width of 2.7 mm meets the limitation.

Regarding claim 7, Sakamoto et al. disclose a color cathode ray tube according to claim 1, wherein the width of each of the skirt portion apertures along the extending end edge of the skirt portion is narrower than the distance between each two adjacent of the skirt portion apertures. The width of each aperture along the extending end edge approaches zero as the aperture round pores, so the width between the apertures is clearly greater than a width approaching zero as figure 3 clearly shows. If one takes the width of each aperture along the extending end edge to be D2 which is 2.3 mm from figure 3 then to find the distance between each two adjacent apertures take  $P2 - D2$ . P2 is 6 mm, so the distance is 3.4 mm which is greater than 2.6 mm.

***Allowable Subject Matter***

Claims 8-12 are allowed.

Claims 4 and 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a color cathode ray tube including the combination of all the limitations as set forth in claim 4, and specifically wherein each of the skirt portion apertures is triangular could not be found elsewhere in prior art.

Regarding claim 5, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a color cathode ray tube including the combination of all the limitations as set forth in claim 5, and specifically wherein the distance between the end of each aperture on the peripheral edge side of the mask effective portion and the extending end edge of the skirt portion accounts for 50% or more of the distance between the peripheral edge of the mask effective portion

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and the extending end edge of the skirt portion could not be found elsewhere in prior art.

Regarding claim 8, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a color cathode ray tube including the combination of all the limitations as set forth in claim 8, and specifically slit groups including a plurality of slits extending substantially at right angles to the extending edge of the skirt portion and arranged at spaces in a direction substantially parallel to the extending end edge, the slits including a central slit, the longest one, and side slits arranged on the opposite sides of the central slit and having lengths reduced stepwise could not be found elsewhere in prior art.

Regarding claims 9-12, claims 9-12 allowed for the reasons given in claim 8, because of their dependency status on claim 8.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.


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Glenn Zimmerman

June 11, 2003

  
ASHOK PATEL  
PRIMARY EXAMINER